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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/630,929	07/31/2003	Eizaburo Watanabe	1186.1017D	9501

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EXAMINER	
HODGES, MATTHEW P	

ART UNIT	PAPER NUMBER
2879	

DATE MAILED: 06/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/630,929	WATANABE ET AL.	
	Examiner	Art Unit	
	Matt P Hodges	2879	

-- Th MAILING DATE of this communication app ars on the cov r sheet with the correspond nc address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *11* is/are allowed.

6)☒ Claim(s) *1-3,5-9 and 12* is/are rejected.

7)☒ Claim(s) *4 and 10* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *31 July 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *7/31/2003*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 3, 5-7, and 12 are rejected under 35 U.S.C. 102(e) as being anticipated by Ryu et al. (US 6,456,007).

Regarding claim 3, Ryu discloses (see figure 5) a plasma display panel including, a substrate (51), an address electrode (55), a dielectric layer (56) covering the address electrode, and a barrier rib structure. The barrier rib structure is a recessed structure where the recess is formed between each of the barrier ribs. The structure further includes a bottom structure (54)

and an upper structure (57) formed on the bottom structure. The electrode is formed on the bottom structure at the bottom of the recess.

Regarding claim 5, a recess is formed at the bottom of the recess structure and the address electrode is formed in this recess region. (See figure 5).

Regarding claim 6, the bottom of the recess portion is equal in width to the bottom of the recessed portion at the openings of the recessed portion.

Regarding claims 7 and 12, the bottom of the recessed structure is substantially thicker than the width of the top of the recessed structure. (See figure 4).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 2, 8, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ryu et al. (US 6,456,007).

Regarding claims 1, 2, and 8, Ryu discloses the device as claimed but does not appear to specify the thickness of the dielectric layer or the composition of the dielectric layer. However Ryu does give the dimensions of the barrier ribs and related structure. Specifically (see figure 4) a portion 40 μm is allocated at the side of the barrier rib for the address electrode and dielectric layer. This portion is a clear indication of the scale of the address electrode and dielectric layer portions height. Further it is evident that the dielectric layer is substantially shorter than the rib

height of the top portion of the recessed structure. The rib height according to figure 4 is 150 μm. Accordingly it is reasonable to assume that Ryu intends for the dielectric layer height not to exceed 150 μm and in fact to be substantially shorter in order to provide stability to the rib structure formed above the dielectric layer. It has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In this case having a dielectric layer of too great of height would reduce stability of the top rib structure while a dielectric layer formed too thin would necessitate a substantially thinner address electrode that would not have suitable electrical characteristics. Therefore it would have been within the skill of one performing routing experimentation to arrive at a suitable working range of the dielectric height that optimizes the limitations sited above. Thus it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a dielectric layer between the ranges of 3-15 μm, since optimization of workable ranges is considered within the skill of the art.

Regarding the composition of the dielectric it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. The choice of the dielectric composition would have a significant effect on the stability and bonding strength of the barrier rib structure. The dielectric material must be sufficiently non conductive and ideally would bond satisfactorily with the glass frit used to form the barrier structure. Glass frit is a good conductor that would suitable bond wit the barrier ribs and thus would be the material chosen by one of ordinary skill in the art. Thus, it would have been obvious to one having ordinary skills in the art at the time the invention was

made to have used glass frit for both the barrier ribs and the dielectric layer, since the selection of known materials for a known purpose is within the skill of the art.

Regarding claim 9, Ryu discloses the barrier walls being 90° from the surface of the substrate. (See figure 5).

Allowable Subject Matter

Claim 11 is allowed.

Claims 4 and 10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 4, the references of the Prior Art of record fails to teach or suggest the combination of the limitations as set forth in claim 4, and specifically comprising the limitation of a plasma display panel including, a substrate, an electrode, a dielectric layer covering the electrode, and a barrier rib structure. The barrier ribs and dielectric layer are composed of the same material and the dielectric layer is between 5 and 50 μm thick. Further the visible light reflectivity of the regions other than the electrodes is 50% or more under the condition where a phosphor is not coated.

Regarding claim 10, the references of the Prior Art of record fails to teach or suggest the combination of the limitations as set forth in claim 10, and specifically comprising the limitation of a plasma display panel including, a substrate, an electrode, a dielectric layer covering the electrode, and a barrier rib structure. The barrier ribs and dielectric layer are composed of the

same material and the dielectric layer is between 5 and 50 μm thick. Further the surface roughness of the sidewall of the transparent barrier rib is 1 μm or less and is equivalent to an optical flat surface.

Regarding claim 11, the references of the Prior Art of record fails to teach or suggest the combination of the limitations as set forth in claim 11, and specifically comprising the limitation of a plasma display panel including, a substrate and a barrier rib structure. The barrier rib structure is a recessed structure. The structure further includes a bottom structure and an upper structure formed on the bottom structure. Further the visible light reflectivity of the regions other than the electrodes is 50% or more under the condition where a phosphor is not coated.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Watanabe et al. (US 6,632,116) discloses the use of a unit formed barrier rib structure where the address electrode is located below the structure in a recess formed into the ribs.

Moore (US 6,452,332) discloses a uniform barrier rib structure formed from glass frit.

Murata et al. (US 6,611,099) discloses the use of a barrier rib structure and dielectric layer where the dielectric layer covers the address electrode.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matt P Hodges whose telephone number is (571) 272-2454. The examiner can normally be reached on 7:30 AM to 4:00 PM M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on (571) 272-2457. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7382 for regular communications and (703) 308-7382 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Joseph Williams

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